ASpec: A New Spectrum and Line Analysis Package for IRAF

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Summary

The ASpec (Version 1.0 Beta) software package is now available. The software can be obtained from the following location: ftp://ftp.stsci.edu/software/ASpec.

Software

Version 1.0 Beta of the ASpec software package is complete and now available to the public. This software package provides tools for the analysis of astronomical spectra. The package consists of the source code (written in the IRAF programming language, spp), the IRAF mkpkg files necessary to compile and link the package, and installation and test procedures (including test data) necessary for installing the software.

Software Capabilities

ASpec:

- operates on spectra from a wide variety of ground-based and space-based instruments
- simultaneously handles spectra from different wavelength regimes
- accommodates non-linear dispersion relations
- provides a variety of functions, individually or in combination, with which to fit spectral features and the continuum
- permits the masking of known bad data
- provides a powerful, intuitive graphical user interface implemented using the new IRAF Object Manager and customized to handle:
  - data input/output (I/O)
  - on-line "help"
  - selection of relevant features for analysis
  - plotting and graphical interaction
  - data base management

Documentation

The following documentation is available to support using the ASpec package:

ASpec Handbook

The ASpec Handbook includes a list of Frequently Asked Questions (with answers), the User's Guide, the Reference Guide, and the Installation Guide. The User's Guide provides a sample session which the potential user can follow step-by-step, a "tour" of the graphical user interface, and a a "how to" guide to frequently executed procedures. The Reference Guide provides a detailed

description of the modeling process used in ASpec. The Installation Guide provides a cookbook for installing and testing the ASpec software.

High-Level Design Documentation

The ASpec design documents describe the framework used in the development of the ASpec package.

Commented Source Code

The source code, written in spp, contains many useful comments. Additionally, each subroutine interface is described using the IRAF help facility. Descriptions of all subroutine calls have been extracted and are available.

Appendix A: NASA Astronomical Software Directory Information for ASpec

Title: ASpec—A New Line and Spectrum Analysis Package for IRAF

Authors: Jonathan D. Eisenhamer, Stephen J. Hulbert, Zoltan G. Levay, and Richard A. Shaw (STScI)

Organization responsible for distribution: STScI

Organization responsible for maintenance: STScI

Software Release Date and Version Number: 1 December 1996/1.0 Beta

Abstract: ASpec is a new spectrum and line analysis package developed at STScI. ASpec is designed as an add-on package for IRAF and incorporates a variety of analysis techniques for astronomical spectra. ASpec operates on spectra from a wide variety of ground-based and space-based instruments. ASpec allows simultaneous handling of spectra from different wavelength regimes. ASpec accommodates non-linear dispersion relations. ASpec provides a variety of functions, individually or in combination, with which to fit spectral features and the continuum. ASpec permits the masking of known bad data. ASpec provides a powerful, intuitive graphical user interface implemented using the new IRAF Object Manager and customized to handle: data input/output (I/O); on-line "help"; selection of relevant features for analysis; plotting and graphical interaction; data base management

System/Physical Description: ASpec runs as an add-on package to IRAF and uses the X11IRAF task, xgterm. Support for X11IRAF is available with versions of IRAF starting with 2.10.3. The source language for ASpec is the IRAF programming language, spp. The completely installed ASpec package requires approximately 6 Mbytes of disk space.

Software Dependency Information: ASpec runs under IRAF and requires XIRAF task, xgterm, and the TABLES add-on package to IRAF.

Statement of Robustness and Use History: ASpec is currently available as a Beta version only and as such has seen limited use. Additional testing is required to verify the robustness of the package.

Keywords: IRAF, line fitting, spectrum analysis

Sources of funding for development of software: This software was prepared by Space Telescope Science Institute under U.S. Government contract NAS5-31859. This project was funded under the Astrophysical Data Program (ADP).

Appendix B: Listing of the ASpec Distribution Files

The following files can be found at ftp://ftp.stsci.edu/software/ASpec:

Directory	File	Description
./	README	This file
software	aspec_v1.0beta.tar	The ASpec package
documents/help	aspec_all.ps	Complete ASpec Handbook
	aspec_title.ps	Title Page
	aspec_contents.ps	Table of Contents
	aspec_faqs.ps	Frequently Asked Questions
	aspec_users.ps	User's Guide
	aspec_reference.ps	Reference Guide
	aspec_install.ps	Installation Guide
	aspec_index.ps	Index
documents/design	aspec_design.ps	ASpec design document
	aspec_design_dbase.ps	ASpec database design document
documents/misc	aspec_prop.ps	Original ADP proposal
	aspec_prop_ttlpg.ps	Title page for ADP proposal
	sub_calls.asc	Listing of subroutine interfaces
	yellow_pages_entry.asc	NASA Astronomical Software Directory information

NOTE: a compressed version (gzip) of most files is also available.

FINAL PATENT/INVENTION REPORT

Contract: NAS5-31859

Principal Investigator: Dr. Stephen Hulbert

Institution: Space Telescope Science Institute

Patents/Inventions Developed: NONE

FINAL PROPERTY REPORT

Contract: NAS5-31859

Principal Investigator: Dr. Stephen Hulbert

Institution: Space Telescope Science Institute

NONE